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Foreword

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Information technology — Coding of audio-visual objects —

Part 31: Video coding for browsers

1 Scope

This document specifies the video coding for browsers (VCB) syntax format and decoding process.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

3.1
4:2:0 colour format
colour format with two chroma arrays that each have half the height and half the width of the luma array

3.2
AC transform coefficient
transform coefficient (3.55) for which the *frequency index* (3.23) in at least one of the two dimensions is non-zero

3.3
bitstream
sequence of bits that forms the representation of *coded frames* (3.11)

3.4
bit string
ordered string with a limited number of bits, in which the left-most bit is the most significant bit (MSB) and the right-most bit is the least significant bit (LSB)

3.5
block
MxN (M-column by N-row) array of *sample values* (3.22) or MxN array of *transform coefficients* (3.55)

3.6
Boolean decoder
arithmetic decoder that processes one Boolean element at a time, wherein each Boolean element indicates how to refine the segmentation of a number line and hence specifies the decoded bits

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3.7
Boolean decoding
process of decoding a *syntax element* (3.54) using a *Boolean decoder* (3.6)

3.8
byte
8-bit *bit string* (3.4)

3.9
byte aligned
position that is an integer multiple of eight, such that the first bit in the *bitstream* (3.3) has position 0 and the position of other bits is stated relative to this position

3.10
chroma
sample array or single *sample* (3.51), denoted by the symbols Cb and Cr, representing one of the two colour difference signals related to the primary colours

3.11
coded frame
set of *syntax elements* (3.54) that represents a *frame* (3.22) in the *bitstream* (3.3)

3.12
component
array or single *sample* (3.51) from one of the three arrays [*luma* (3.32) and two *chroma* (3.10)] that compose a picture in *4:2:0 colour format* (3.1)

3.13
control partition
partition containing the frame header and all of the macroblock headers for a *coded frame* (3.11)

3.14
DC transform coefficient
transform coefficient (3.55) for which the *frequency index* (3.23) in both of the two dimensions is zero

3.15
decoded frame
frame (3.22) reconstructed from a *coded frame* (3.11) by a *decoder* (3.16)

3.16
decoder
embodiment of the *decoding process* (3.17)

3.17
decoding process
process that derives *decoded frames* (3.15) from *syntax elements* (3.54)

3.18
dequantization
process in which *transform coefficients* (3.55) are obtained by scaling the *quantized transform coefficients* (3.45)

3.19
encoder
embodiment of an *encoding process* (3.20)

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3.20
encoding process
process that generates a *bitstream* (3.3)

Note 1 to entry: Other than establishing criteria for conformance of bitstreams produced by an encoder, the encoding process is not specified in this document (although an example encoding process is informatively described in Annex B).

3.21
flag
binary variable

3.22
frame
array of luma samples (Y) and two corresponding arrays of chroma samples (Cb and Cr) in *4:2:0 colour format* (3.1)

3.23
frequency index
one-dimensional or two-dimensional index associated with a *transform coefficient* (3.55) prior to an *inverse transform* (3.29) part of the *decoding process* (3.17)

3.24
inter coding
macroblock (3.33) or *frame* (3.22) coded using *inter prediction* (3.25)

3.25
inter prediction
process of deriving the *prediction* (3.37) for the current *frame* (3.22) using previously *decoded frames* (3.15)

3.26
intra coding
macroblock (3.33) or *frame* (3.22) coded using *intra prediction* (3.28)

3.27
I frame
frame (3.22) that may be decoded using only *intra prediction* (3.28)

3.28
intra prediction
process of deriving the *prediction value* (3.42) for the current *sample* (3.51) using previously decoded *sample values* (3.52) in the same *decoded frame* (3.15)

3.29
inverse transform
part of the *decoding process* (3.17) by which a set of *transform coefficients* (3.55) are converted into spatial-domain values

3.30
key frame
frame (3.22) where the *decoding process* (3.17) is reset, such that a key frame and all following frames are always decodable without access to preceding frames and such that a frame is a key frame if and only if it is an *I frame* (3.27)

3.31
level
specified set of constraints on the permissible values for the *syntax elements* (3.54) and other characteristics of the *bitstreams* (3.3) produced by conforming *encoders* (3.19) established in combination with defined *profiles* (3.43) for ensuring interoperability of the bitsreams produced by conforming encoders with the *decoding process* (3.17) specified by conforming *decoders* (3.16)

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3.32
luma
sample array or *single sample* (3.51), represented by the symbol Y, that ordinarily represents the brightness signal related to the primary colours

3.33
macroblock
16x16 luma sample value *block* (3.5) and its two corresponding 8x8 chroma sample value blocks

3.34
motion vector
two-dimensional vector used for *inter prediction* (3.25) that provides an offset from the coordinates in the *decoded frame* (3.15) to the coordinates in a *reference frame* (3.49)

3.35
parse
process of extracting a *syntax element* (3.54) from a *bitstream* (3.3)

3.36
partitioning
process of dividing a set into subsets such that each element in the set belongs to only one subset

3.37
prediction
prediction process consisting of either *inter* (3.25) or *intra prediction* (3.28)

3.38
prediction frame
P frame
frame (3.22) decoded by referencing another frame

3.40
prediction process
process of estimating the decoded *sample value* (3.52) or data element using a predictor

3.41
prediction residual
difference between the reconstructed *samples* (3.51) and the corresponding *prediction values* (3.42)

3.42
prediction value
combination of the previously decoded *sample values* (3.52) or data elements, used in the *prediction process* (3.40) of the next sample value or data element

3.43
profile
specified subset of syntax, semantics and processes established in combination with defined *levels* (3.31) for ensuring interoperability of the *bitstreams* (3.3) produced by conforming *encoders* (3.19) with the *decoding process* (3.17) specified for conforming *decoders* (3.16)

3.44
quantization parameter
variable used for scaling the *quantized coefficients* (3.45) in the *decoding process* (3.17)

3.45
quantized coefficient
transform coefficient (3.55) before *dequantization* (3.18)

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3.46
random access point
point, other than the beginning of the *bitstream* (3.3), for starting the *decoding process* (3.17) for the remainder of a bitstream

3.47
raster scan
mapping of a two-dimensional pattern to a one-dimensional pattern such that the first entries in the one-dimensional pattern are from the top row of the two-dimensional pattern scanned from left to right, followed similarly by the second, third, etc. rows of the pattern (going down) each scanned from left to right

3.48
reconstruction
addition of the decoded *prediction residual* (3.41) and the corresponding *prediction values* (3.42)

3.49
reference frame
previously *decoded frame* (3.15) used during *inter prediction* (3.25)

3.50
reserved
syntax element (3.54) value which may be used to extend this specification in the future

Note 1 to entry: Such values are not allowed to be present in bitstreams conforming to this document.

3.51
sample
basic element of the array of the *decoded frame* (3.15)

3.52
sample value
value of a *sample* (3.51), which is an integer in the range of 0 to 255, inclusive

3.53
sub-block
4x4 *block* (3.5)

3.54
syntax element
element of data represented in the *bitstream* (3.3)

3.55
transform coefficient
scalar quantity, considered to be in a frequency domain, that is associated with a particular one-dimensional or two-dimensional *frequency index* (3.23) in an *inverse transform* (3.29) part of the *decoding process* (3.17)

4 Abbreviated terms

DCT	Discrete cosine transform
LSB	Least significant bit
MB	Macroblock
MSB	Most significant bit

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